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13. ABSTRACT *(Maximum 200 words)*

The subject grant provided start-up funding in the effort to design and construct a new ROV for the National Deep Submergence Facility operated at Woods Hole Oceanographic Institution. A detailed survey of present state of the art ROV technology was completed in order to take maximum advantage of proven technology during the construction phase which will be funded from other sources.

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Final Report: ONR Grant No. N00014-98-10-154
Upgrades to the Tethered Vehicle Systems of the National Deep Submergence Facilities
January 1, 1998 – December 31, 1999

The grant provided start-up funding in the effort to design and construct a new tethered vehicle system for the National Deep Submergence Facility operated by the Woods Hole Oceanographic Institution. Funds, initially provided for other purposes, were redirected by amendment from the Office of Naval Research. During the term of this grant the following efforts were undertaken:

- Detailed survey of present "state of the art" for deep ROV technology has been completed. This has required visits and correspondence to both ROV technology vendors and other institutions involved in the development and application of ROVs for science. As stated in WHOI's ROV Upgrade proposal, we expect to take maximum advantage of existing and proven technology, whenever possible.
- Two preliminary and competing designs for the Jason II vehicle are presently being generated. These designs include explicit information regarding core elements of Jason II power, telemetry and control. An external design review committee, consisting of both internal and external specialists is scheduled to meet at WHOI in early March to assist in evaluating these designs.
- An intensive effort is underway to build a Jason II simulation model with the specific physical design detail regarding the vehicle's ability to manipulate and store samples. This computer model will enable various configurations of manipulator and sample storage concepts to be tested *before* a final design for the vehicle is adopted. Further, it is expected that this model will assist with planning of individual science missions once the vehicle is in operation.
- In May of this year, a design review will be convened at WHOI specifically with the purpose of receiving feedback from the user community, including DESSC, regarding scientific capabilities of the new vehicle.
- A detailed Project Plan, based on the preliminary design presently under technical review, has been completed. This includes information regarding materials cost, personnel required and schedule milestones. Field trials of the new Jason II vehicle will take place in June of 2001, with the first science operations planned for Fall of the same year.

- A new Web page has been published, informing the oceanographic user community of project status and general information about the project. The page is in its early stages and will be updated frequently. It may be viewed at:
  http://www.marine.whoi.edu/ships/rovs/upgrades.htm